

OCE 101

- Syllabus
 - Overview & schedule
 - Move to the bay campus
 - Term paper overview
- OE classes and degree path
 - Common study areas
- Some other discussion
 - Learning styles
 - Discussion about study habits in engineering

Overview

- Goal of this class
 - Provide you with exposure to several areas within ocean engineering
 - Help you formulate a potential trajectory through the next few years of classes
 - Evaluate your writing skills
 - Provide a forum for you to ask questions and inquire about ocean engineering
- Grading
 - 50% attendance – 50% term paper
 - You can miss one class with written excuse

Class schedule

Schedule:

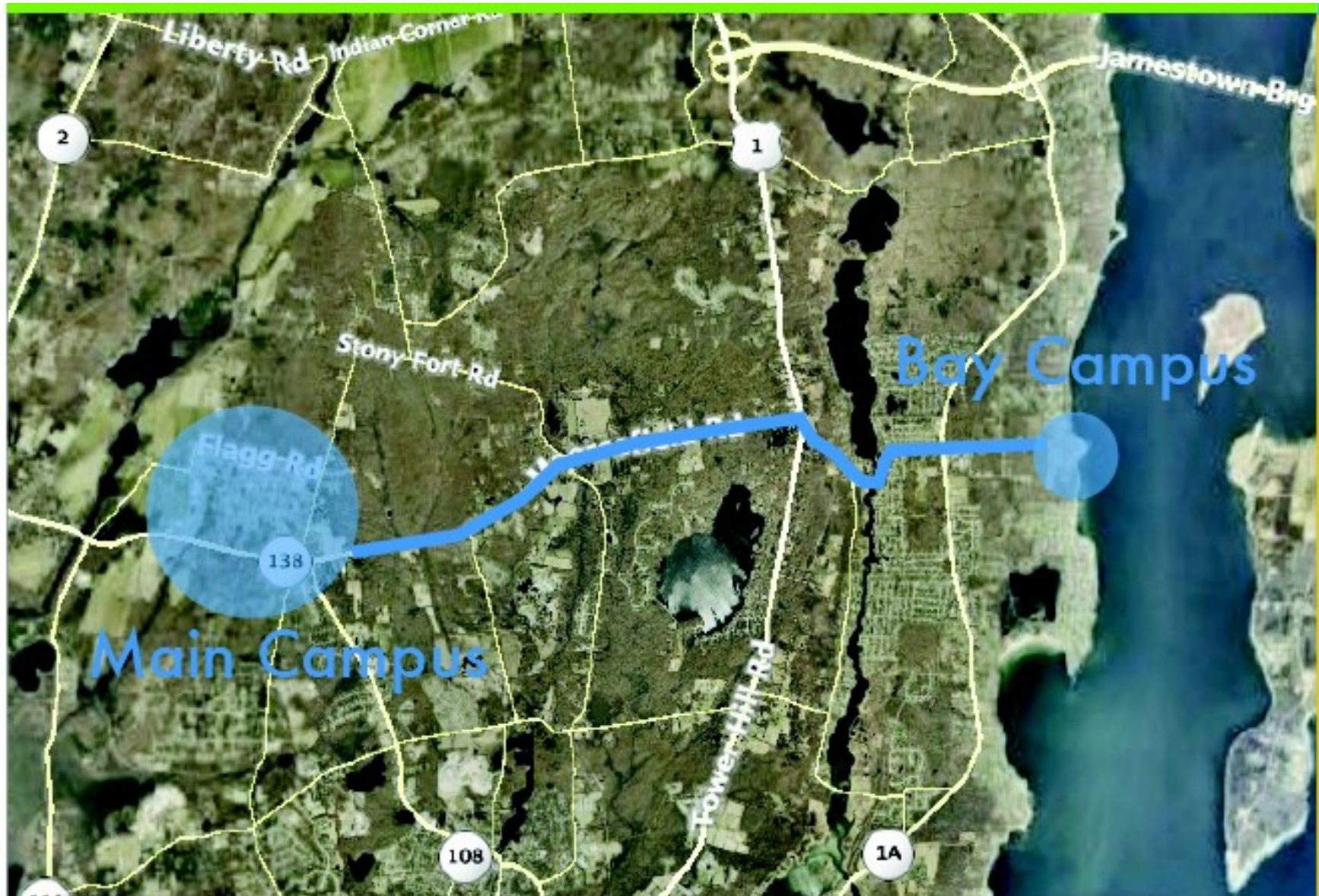
Date	Presenter	Misc	Location
1/28/10	Dr. Roman – Intro	-	Ranger Hall
2/4/10	-	-	NO CLASS
2/11/10	Dr. Robert Ballard – Ocean Exploration	-	CI auditorium
2/18/10	Dr. Roman – Ocean robotics	-	CI auditorium
2/25/10	Dr. Stepanishen – Underwater Acoustics	-	CI auditorium
3/4/10	-	-	NO CLASS
3/11/10	Dr. Baxter – Marine sediments	ABSTRACTS DUE	CI auditorium
3/18/10	RADM Sam DeBow – History of Hydrography	-	CI auditorium
3/25/10	SPRING BREAK	-	NO CLASS
4/1/10	TBD	-	TBD
4/8/10	Dr. Malcolm Spaulding – Offshore Energy	-	CI auditorium
4/15/10	TBD	-	TBD
4/22/10	TBD	-	TBD
4/29/10	TBD	PAPER DUE – 5:00 pm	TBD

Still to be scheduled

These will happen this semester but the dates are not certain yet. See the class wiki for updates, (you'll get an email about this).

- Tour of a navy submarine. This will be a bus trip from Main Campus to Groton and back.
- Tour of RV Endeavor, when it returns from the ship yard in the spring.
- Tour of the URI Inner Space Center (ISC). This will happen in the spring when the Okeanos Explorer and the ISC are connected with live communications.
- Beach survey – South Kingstown Town Beach

Move to Bay Campus



Coastal Institute Auditorium



Term paper assignment

- You will write a short (2000-4000 word) paper on a topic of your choice related to ocean engineering
 - Identify a topic within the field of ocean engineering
 - Discuss the current state of the art for this topic
 - Discuss what challenges are ahead and where active work in the area is going
 - Discuss the fundamental engineering and science principles required to do work or research in this area.
 - Outline a plan for selecting professional electives that would provide background for this topic

Grading criteria

This exercise is intended to be an evaluation of your technical writing skills

- Clarity of the writing and organization
- Completeness of the topic overview
- Clarity of the graphics
- Proper use of units, symbols and quantities
- Proper citations and references
- Clarity of links to a potential educational program and course selection

A formatting document is on the wiki to provide guidance

- Need 4 references (from published sources)
- Need 2 figures

Key points

Abstract due – 3/11/10 (250 words)

- This is a short concise statement that conveys the following...
 - What the topic is
 - What will be covered in the paper
 - Why the reader should care
 - What conclusion will be drawn at the end of the paper
- IMPORTANT NOTES
 - If you receive a **D** or **F** on the abstract you will have to meet with me and discuss your abstract prior to your final paper being accepted for grading.
 - The abstract grade is 25% of the term paper grade

Some topic ideas

- Wave power
- Wind power
- Sailboat design
- Beach erosion
- Deep sea drilling
- Robotics
 - Autonomous vehicles
 - Remotely vehicles
 - Surface craft
 - Robotic fish
- Buoys and moorings
- Ice breakers
- Offshore structures
- Oil rigs
- Sediment transport
- Current modeling
- Sensors
 - Chemical
 - Pressure
 - Temperature
 - Wave
- Ocean noise
- Satellite oceanography
- Seafloor mapping
- Sonar design
- Tsunamis
- Cargo ships
- Marine sediments
- Deep sea mining
- Navy ships
- Navy subs
- Rogue waves
- Climate change
- Marine pollution
- Storm damage

OE - Faculty

OCEAN ENGINEERING FACULTY

JAMES MILLER, PROFESSOR AND CHAIRMAN (joint w/ GSO)
(Underwater Acoustics)

STEPHAN GRILLI, PROFESSOR
(Tsunamis and Freak Waves, Energy)

MALCOLM SPAULDING, PROFESSOR
(Coastal Ocean Modeling, Pollution, Energy)

SAU LON (JAMES) HU, PROFESSOR
(Marine Structures)

PETER STEPANISHEN, PROFESSOR
(Underwater Acoustics)

ROBERT TYCE, PROFESSOR
(Ocean Robotics and Instrumentation)

KATE MORAN, PROFESSOR (joint w/ GSO)
(Marine Geomechanics and Drilling)

CHRIS ROMAN, ASSISTANT PROFESSOR
(joint w/GSO) (Ocean Exploration)

CHRIS BAXTER, ASSOCIATE PROFESSOR
(joint w/ Civil Eng.) (Marine Geomechanics)

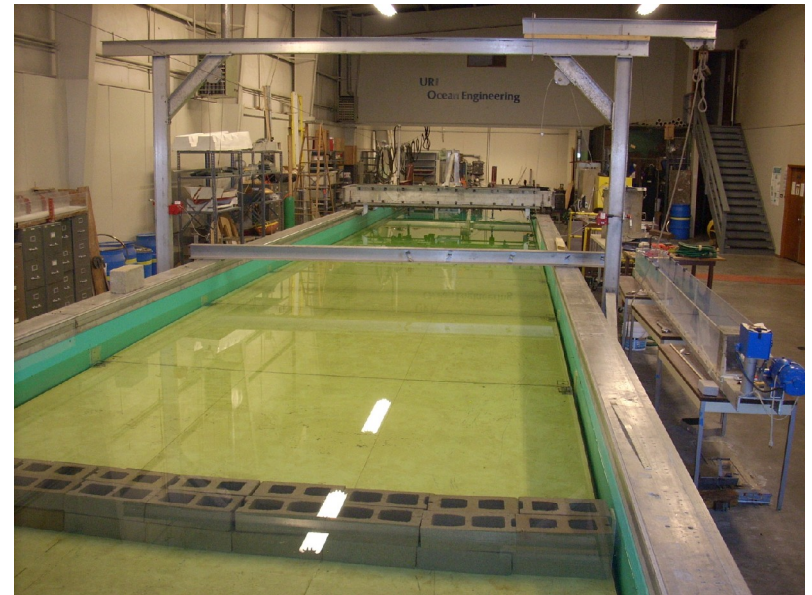
GOPU POTTY, RESEARCH ASSISTANT PROFESSOR
(Sediment Acoustics)

HAROLD VINCENT, RESEARCH ASSOCIATE PROFESSOR
(Underwater Acoustics)

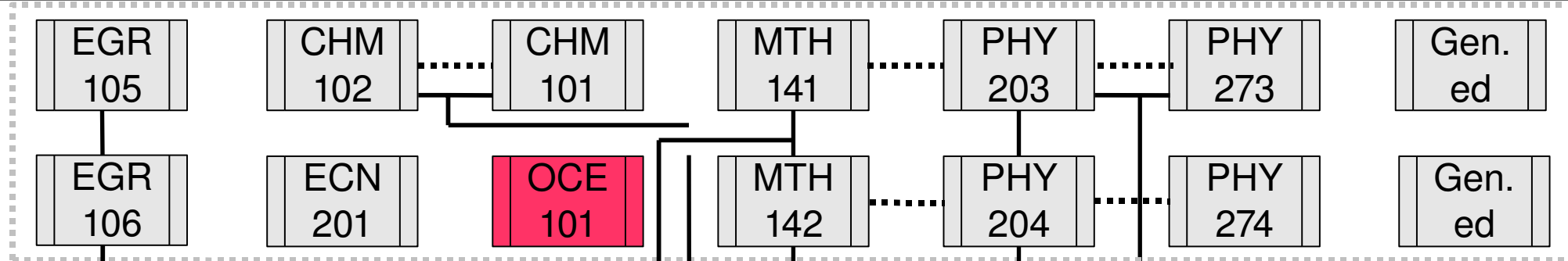
ANNETTE GRILLI, RESEARCH ASSISTANT PROFESSOR
(Ocean climatology and renewable energy systems)

ROBERT BALLARD, PROFESSOR (joint w/GSO)
(Ocean Exploration)

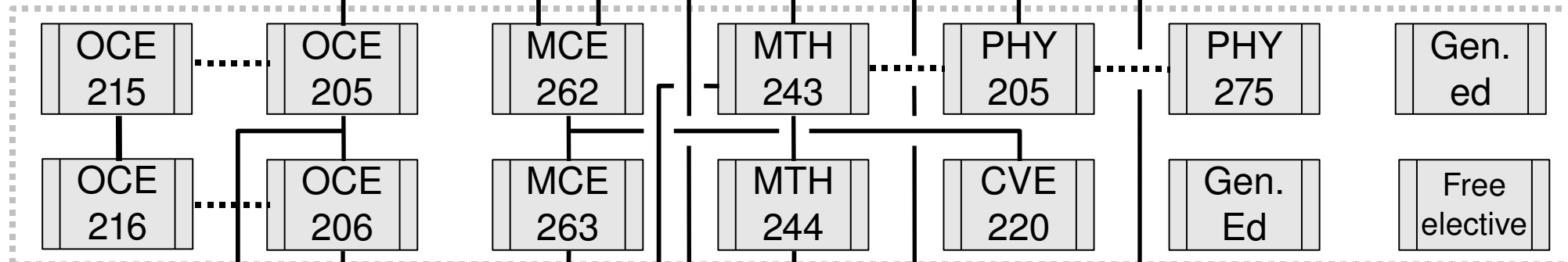
Facilities



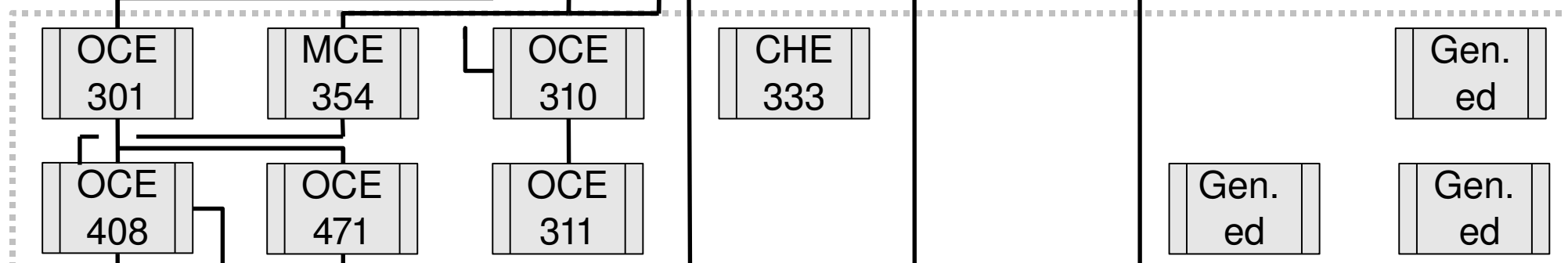
Freshmen



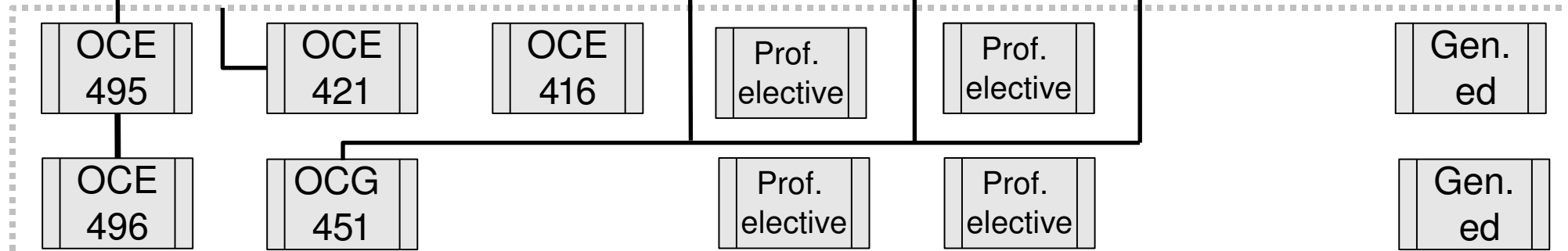
Sophomore



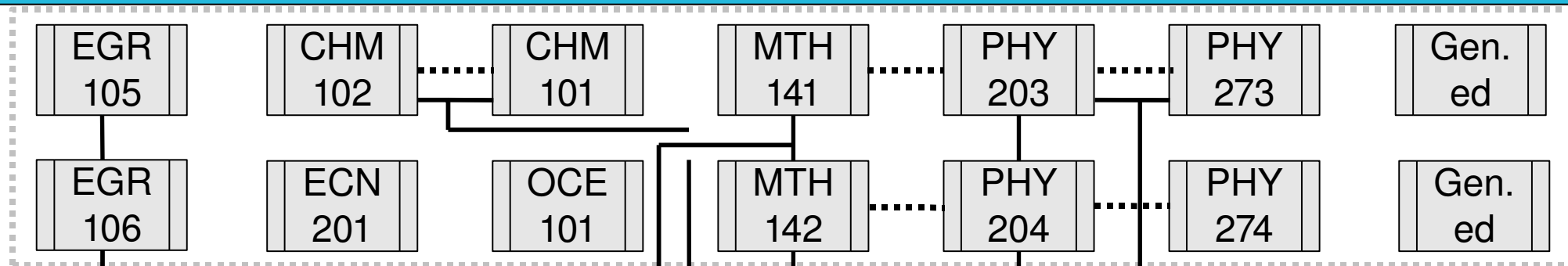
Junior



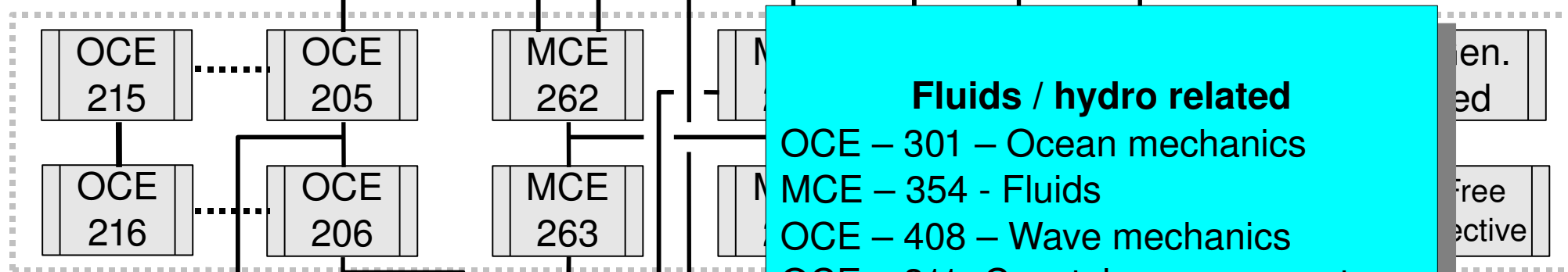
Senior



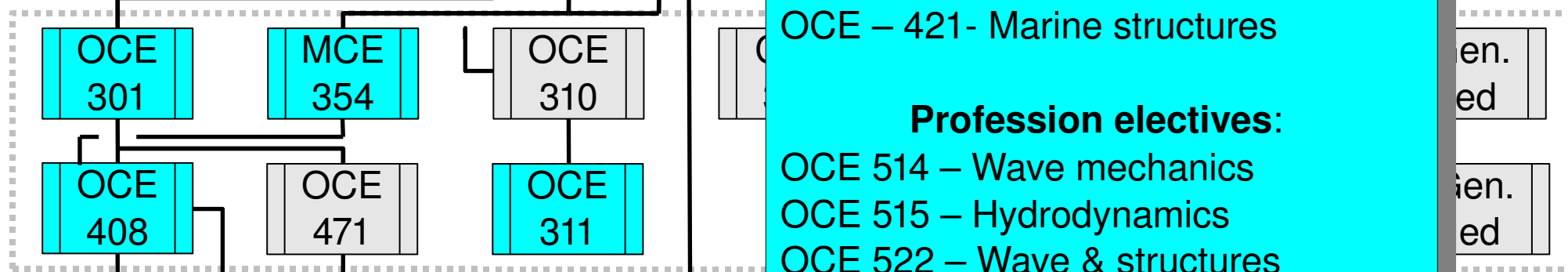
Freshmen



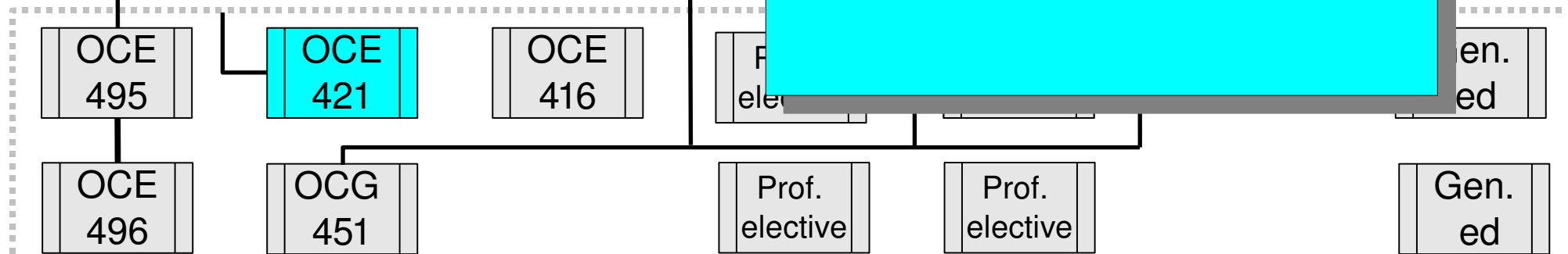
Sophomore



Junior



Senior

**Fluids / hydro related**

OCE – 301 – Ocean mechanics

MCE – 354 - Fluids

OCE – 408 – Wave mechanics

OCE – 311- Coastal measurements

OCE – 421- Marine structures

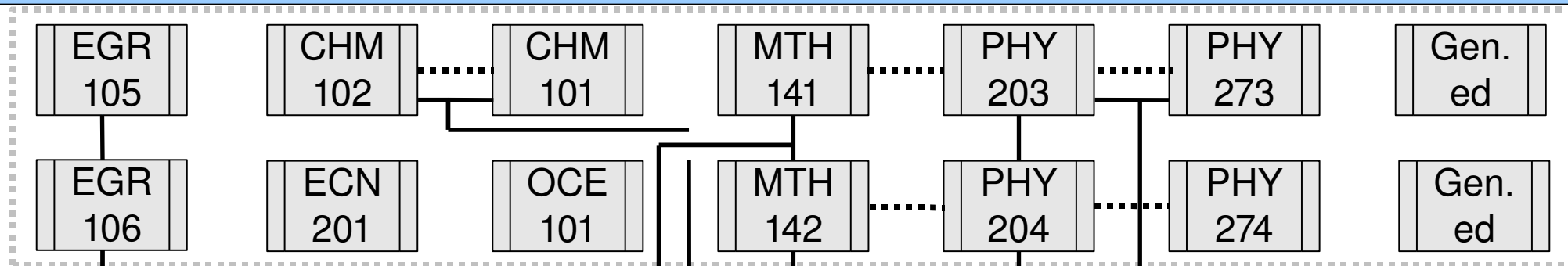
Profession electives:

OCE 514 – Wave mechanics

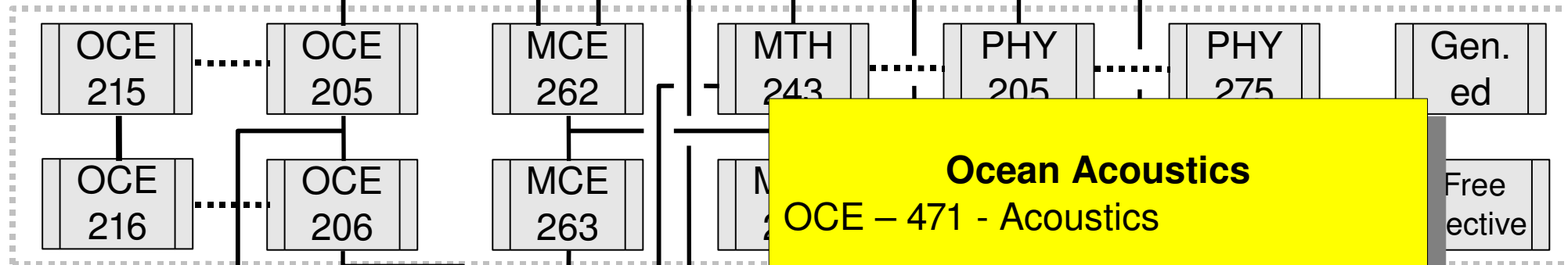
OCE 515 – Hydrodynamics

OCE 522 – Wave & structures

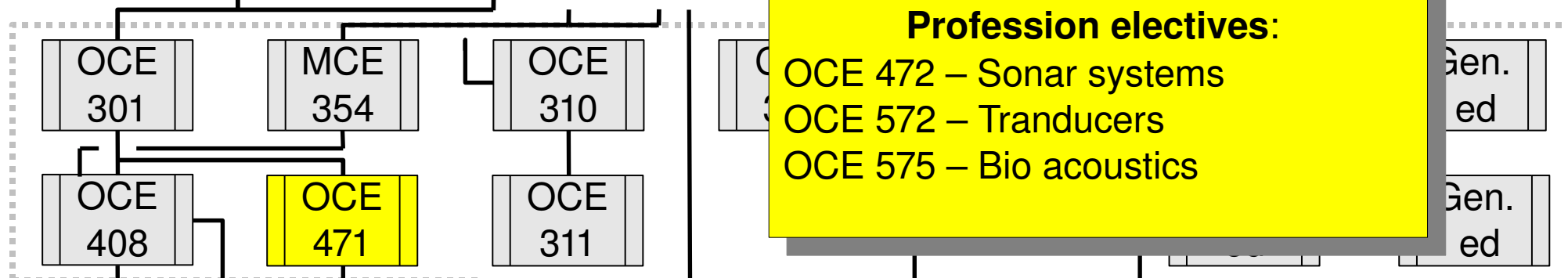
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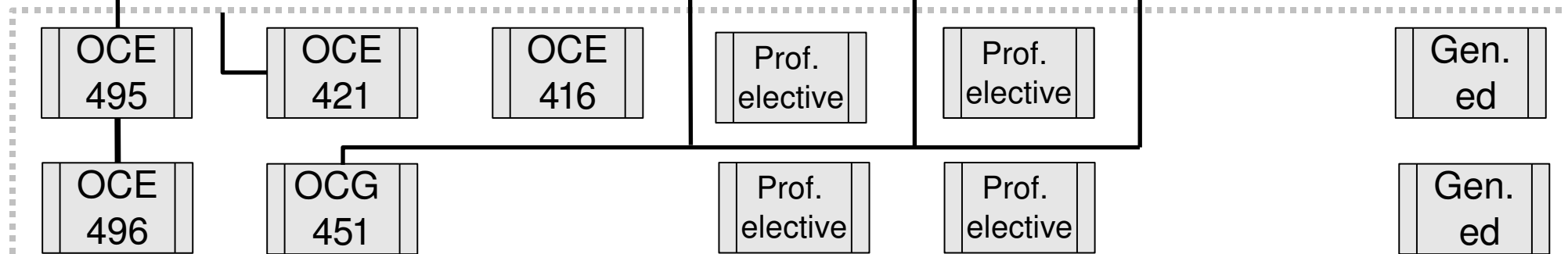
Sophomore



Junior



Senior

**Ocean Acoustics**

OCE – 471 - Acoustics

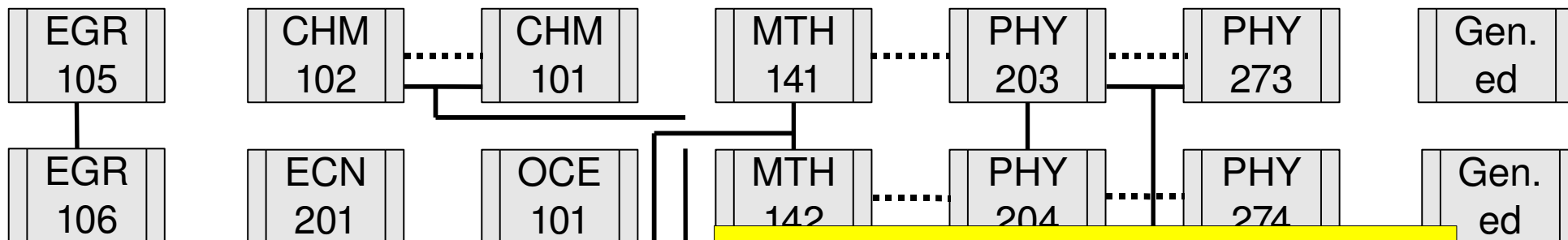
Profession electives:

OCE 472 – Sonar systems

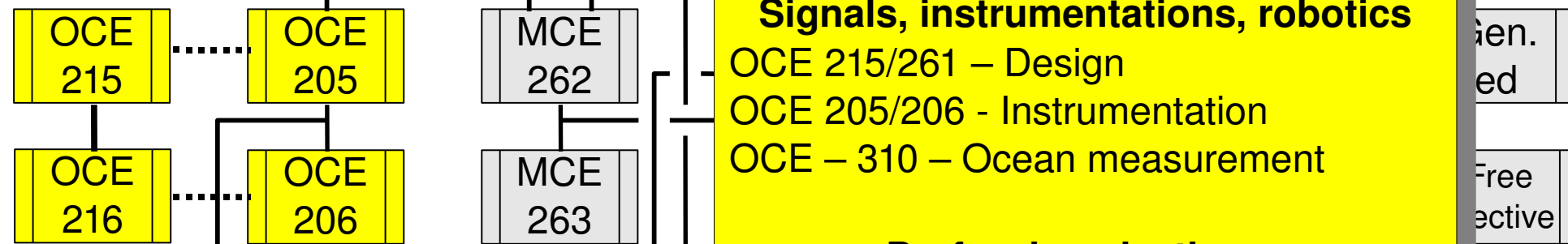
OCE 572 – Transducers

OCE 575 – Bio acoustics

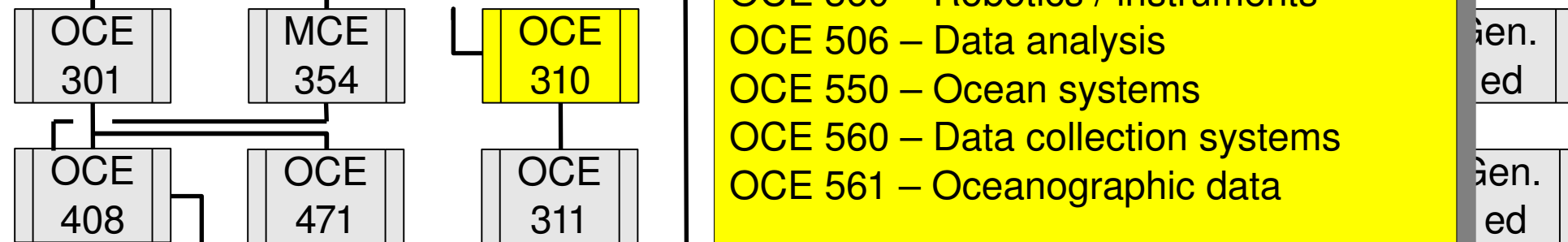
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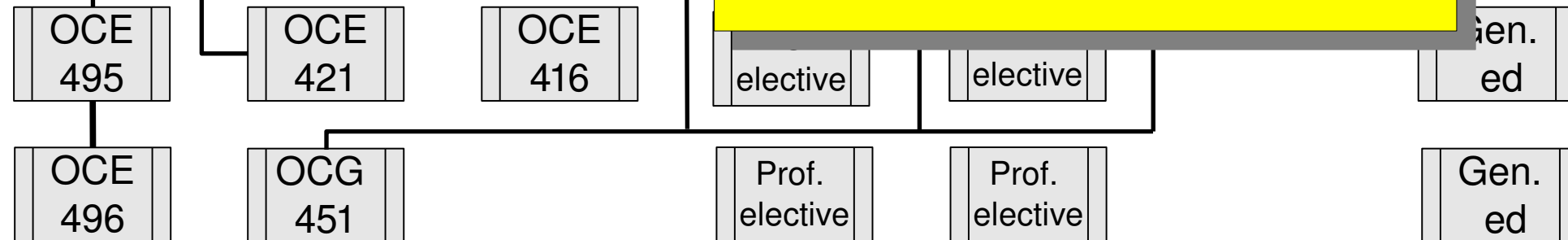
Sophomore



Junior



Senior

**Signals, instrumentations, robotics**

OCE 215/261 – Design

OCE 205/206 - Instrumentation

OCE – 310 – Ocean measurement

Profession electives:

OCE 360 – Robotics / instruments

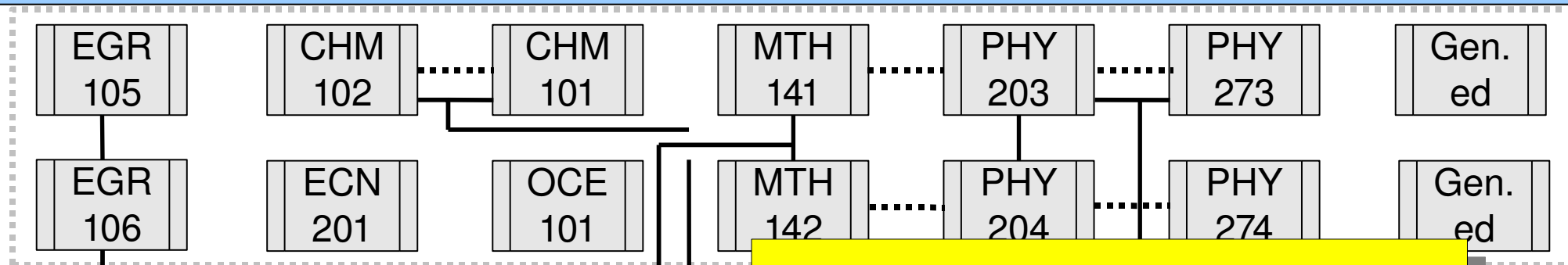
OCE 506 – Data analysis

OCE 550 – Ocean systems

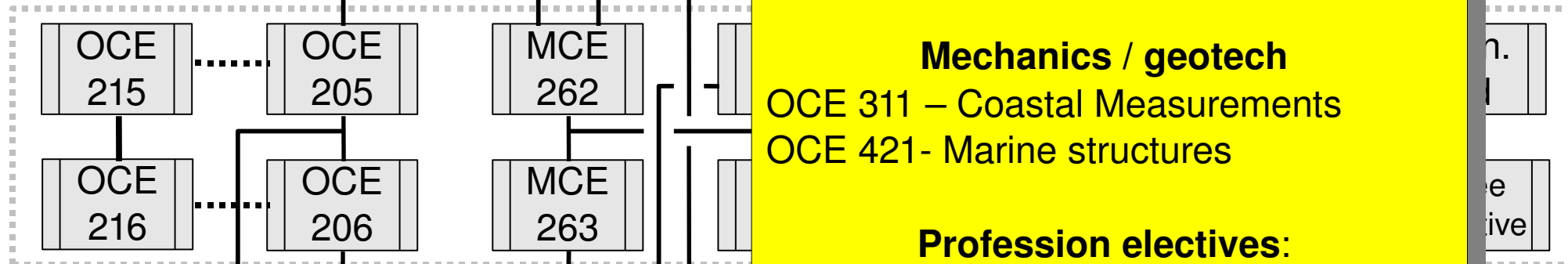
OCE 560 – Data collection systems

OCE 561 – Oceanographic data

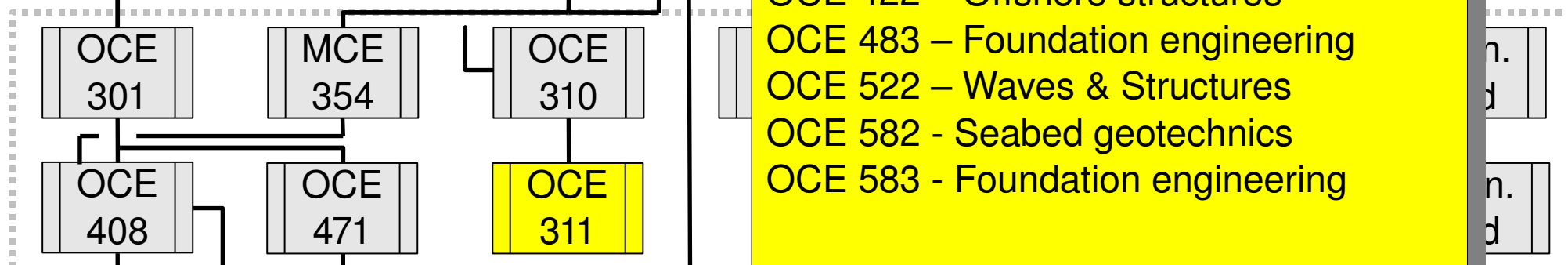
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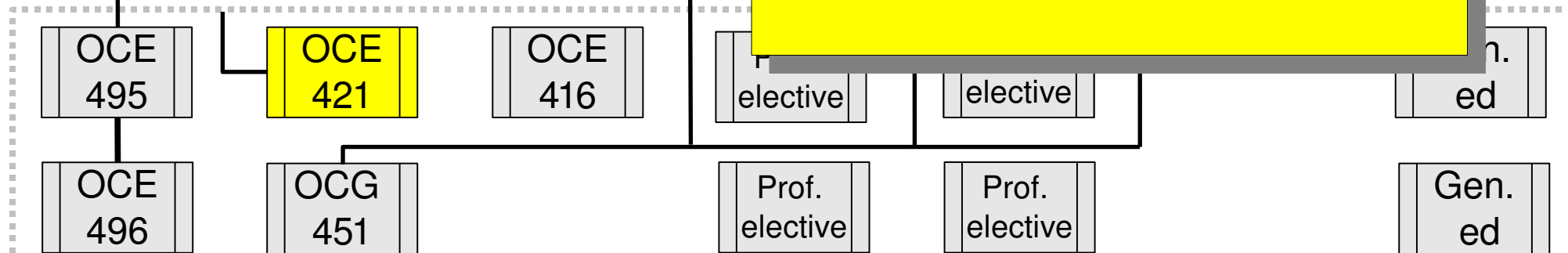
Sophomore



Junior



Senior

**Mechanics / geotech**

OCE 311 – Coastal Measurements

OCE 421- Marine structures

Profession electives:

OCE 422 – Offshore structures

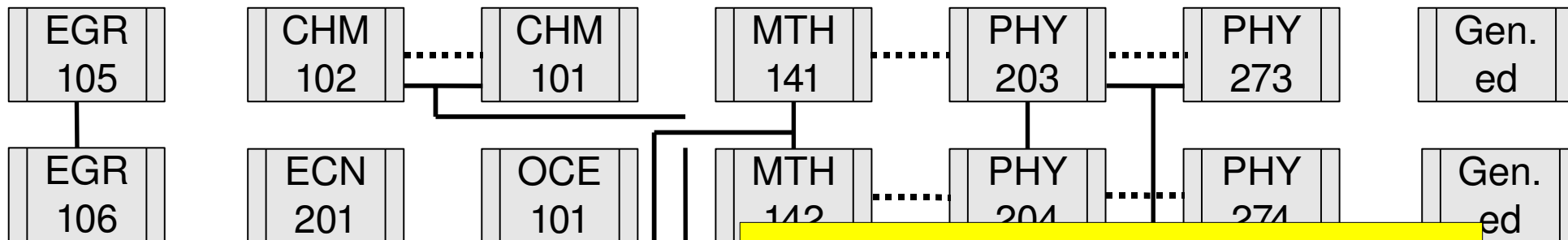
OCE 483 – Foundation engineering

OCE 522 – Waves & Structures

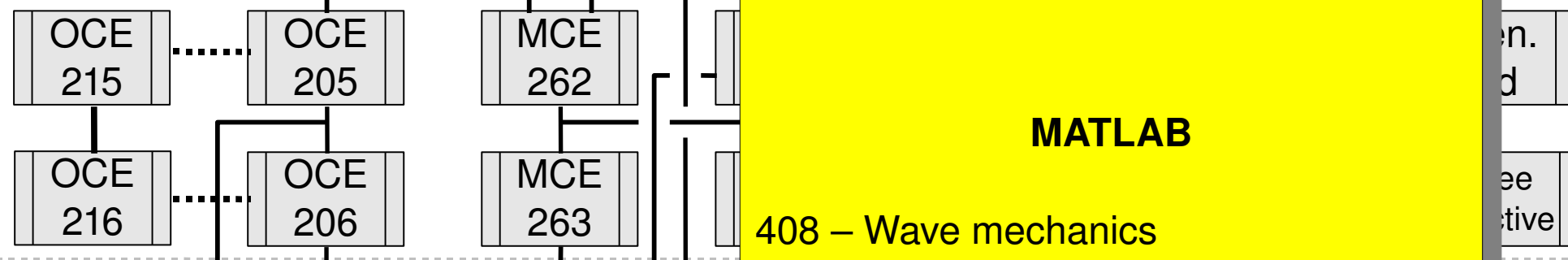
OCE 582 - Seabed geotechnics

OCE 583 - Foundation engineering

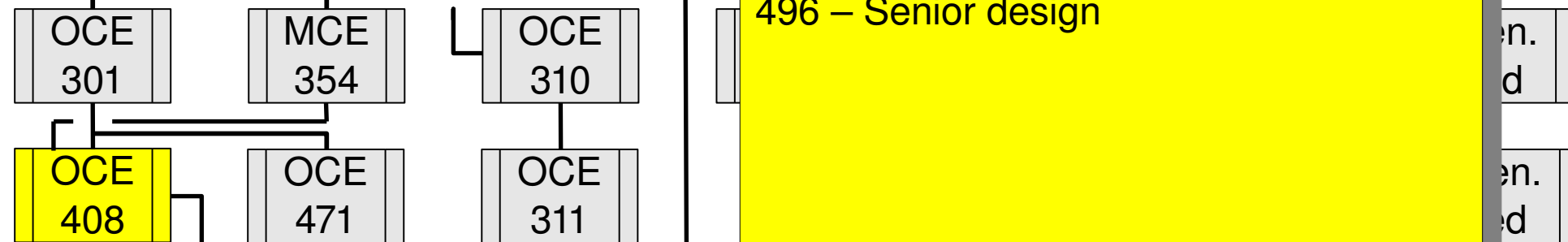
Freshmen



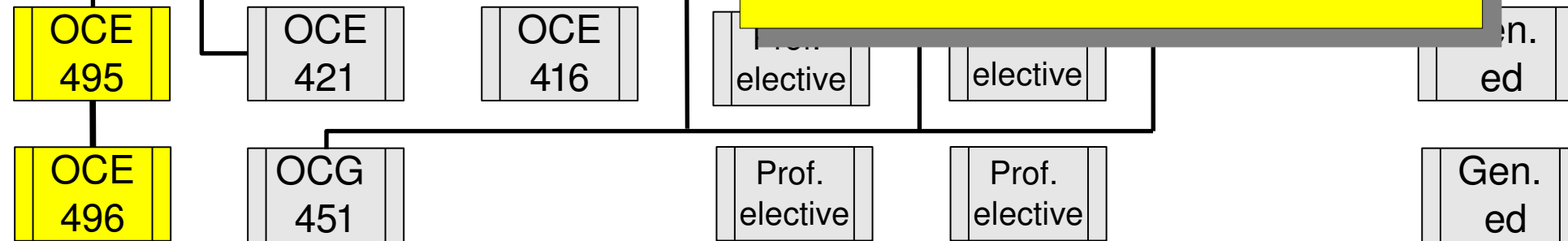
Sophomore



Junior



Senior

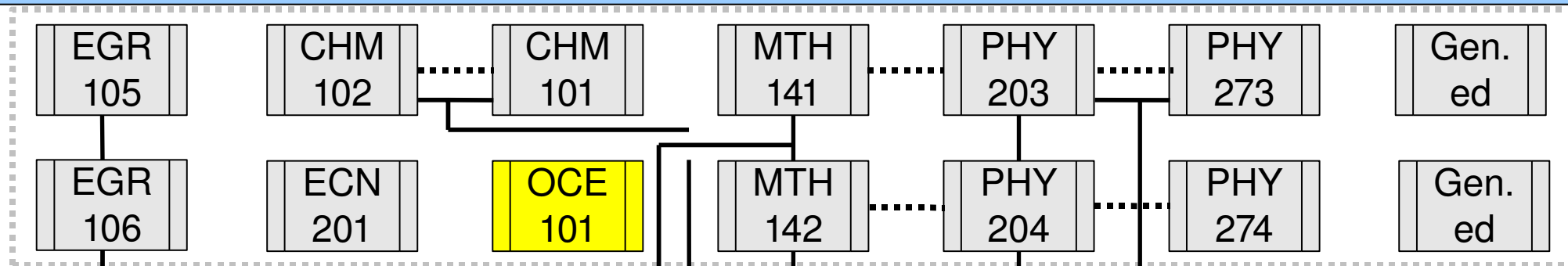
**MATLAB**

408 – Wave mechanics

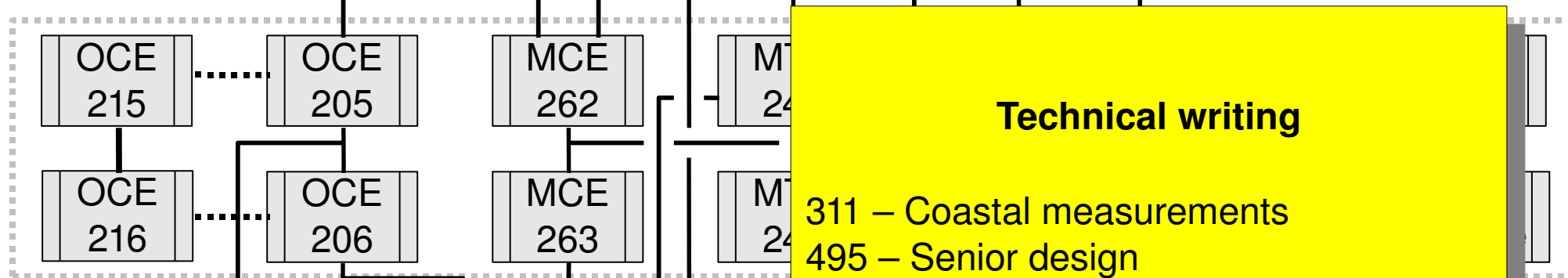
495 – Senior design

496 – Senior design

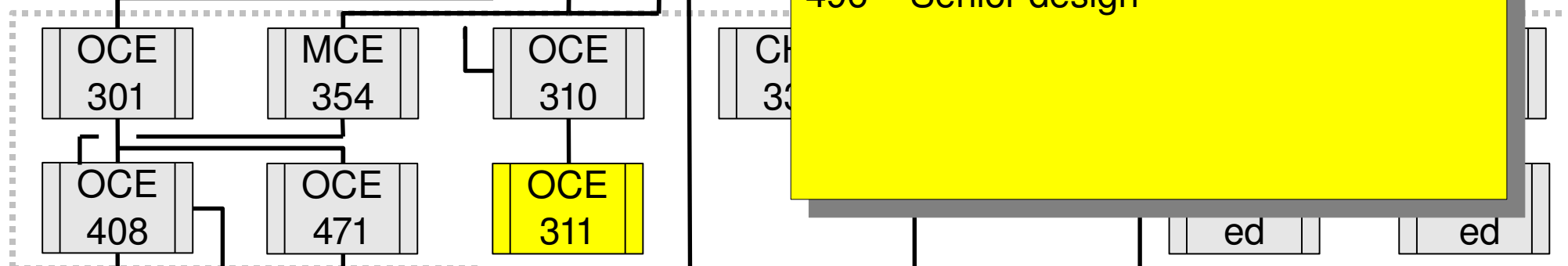
Freshmen



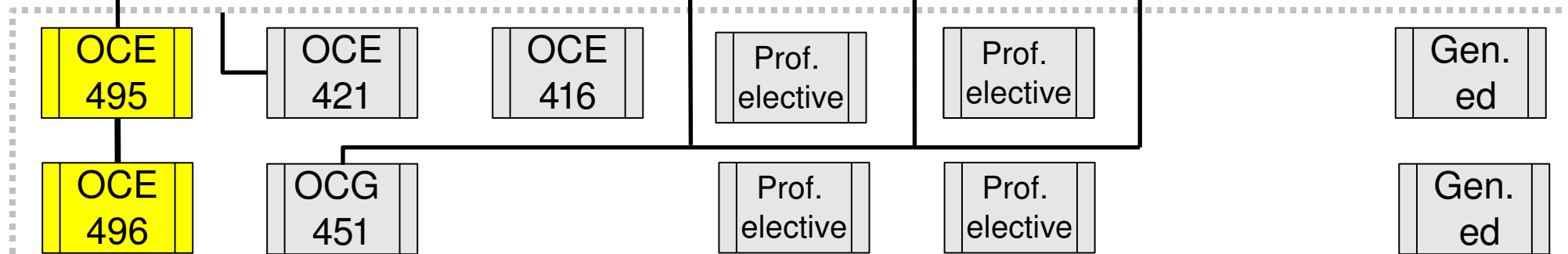
Sophomore



Junior



Senior

**Technical writing**

311 – Coastal measurements

495 – Senior design

496 – Senior design

Learning to learn

- You have two basic jobs here
 - Developing the skill set of your intended major
 - Analytical skills
 - Writing and reporting
 - Professional practice
 - Learning how to learn
 - Finding the mechanisms to
 - Understand new concepts
 - Manage your workload
 - Apply concepts forward
 - in the most efficient manner you can

Pedagogy jargon

Modes of Learning

What we Read	10%
What we Hear	20%
What we See	30%
What we both See and Hear	50%
What we Discuss with others	70%
What we Experience	80%
What we Teach someone else	95%

Learning styles

- This is a researched topic for engineering and science
- There are resources out there to help you
- You need to identify what you do best and what you are predisposed to
- <http://www4.ncsu.edu/unity/lockers/users/f/felder/public/ILSdir/styles.htm>
- Reference:
 - “*Applications, Reliability and Validity of the Index of Learning Styles*”, R. M. Felder and J. Spurlin, Intl J. Engng Ed. Vol 21 No 1, pp 103-112, 2005

Learn styles

ACTIVE AND REFLECTIVE LEARNERS

Active learners tend to retain and understand information best by doing something active with it--discussing or applying it or explaining it to others. Reflective learners prefer to think about it quietly first.

SENSING AND INTUITIVE LEARNERS

Sensing learners tend to like learning facts, intuitive learners often prefer discovering possibilities and relationships.

VISUAL AND VERBAL LEARNERS

Visual learners remember best what they see--pictures, diagrams, flow charts, time lines, films, and demonstrations. Verbal learners get more out of words--written and spoken explanations. Everyone learns more when information is presented both visually and verbally.

SEQUENTIAL AND GLOBAL LEARNERS

Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one. Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it."

Online - questionnaire

- <http://www.engr.ncsu.edu/learningstyles/ilsweb.html>

I understand something better after I

- (a) try it out.
- (b) think it through.

I would rather be considered

- (a) realistic.
- (b) innovative.

When I think about what I did yesterday,
I am most likely to get

- (a) a picture.
- (b) words.

.....	Results for: Chris												
	ACT			X									REF
		11	9	7	5	3	1	1	3	5	7	9	11
							<--	-->					
	SEN						X						INT
		11	9	7	5	3	1	1	3	5	7	9	11
							<--	-->					
	VIS	X											VRB
		11	9	7	5	3	1	1	3	5	7	9	11
							<--	-->					
	SEQ								X				GLO
		11	9	7	5	3	1	1	3	5	7	9	11
							<--	-->					

Open forum

- Reflect on your progress and experience thus far
 - Comprehension
 - Are you getting it?
 - Is it sticking?
 - Distractions in an out of class, what?
 - Personal life, TV, phones, Facebook
 - Study habits
 - Alone, groups, time
 - Materials
 - Finding additional materials, other books or guides